

WHAT IS CLAIMED IS

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1. A method of displaying images that resemble each other, comprising the steps of:

extracting image features from images;

dividing a feature space of the image features into sub-spaces having a hierarchical structure;

generating a tree structure having the sub-spaces as nodes thereof;

dividing a display space into divided spaces reflecting the tree structure; and

assigning the images to the corresponding divided spaces so as to display the images arranged in the display space.

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2. The method as claimed in claim 1, wherein said step of dividing a feature space includes a step of generating clusters having a circle shape by applying a clustering method recursively.

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3. The method as claimed in claim 2, wherein said clustering method includes the steps of:

obtaining a distance between an image feature and one of the clusters closest to the image feature
5 with respect to each one of the image features;

selecting an image feature successively from the image features in an ascending order of the distance;

obtaining an increase in a radius of each
10 cluster such that said each cluster contains the selected image feature; and

making the selected image feature belong to a cluster that has the smallest radius increase.

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4. The method as claimed in claim 1, wherein said step of dividing the display space includes the
20 steps of:

a) dividing the display space in a direction of a selected dimension, selected for a given node of the tree structure, into divided spaces as many as there are nodes immediately under the given node in the tree
25 structure; and

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6. The method as claimed in claim 4, wherein
said step a) divides the display space such that the
divided spaces corresponding to the respective nodes
have sizes proportional to numbers of image features
20 belonging to the respective nodes.

7. The method as claimed in claim 4, wherein

said step a) divides the display space such that the divided spaces corresponding to the respective nodes have sizes proportional to sizes of the sub-spaces corresponding to the respective nodes.

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8. The method as claimed in claim 4, further comprising a step of adjusting sizes of the divided spaces such that the sizes of the divided spaces corresponding to the respective nodes reflect numbers of image features belonging to the respective nodes and sizes of the sub-spaces corresponding to the respective nodes.

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9. A computer-readable medium having a program embodied therein for causing a computer to create a display screen image for displaying images that resemble each other, said program comprising:

a program code for extracting image features from images;

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a program code for dividing a feature space of
the image features into sub-spaces having a hierarchical
structure;

5 a program code for generating a tree structure
having the sub-spaces as nodes thereof;

a program code for dividing a display space
into divided spaces reflecting the tree structure; and

a program code for assigning the images to the
corresponding divided spaces so as to display the images
10 arranged in the display space.

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15 10. The computer-readable medium as claimed in
claim 9, wherein said program code for dividing a
feature space includes a program code for generating
clusters having a circle shape by applying a clustering
method recursively.

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11. The computer-readable medium as claimed in
25 claim 10, wherein said clustering method includes the

steps of:

obtaining a distance between an image feature and one of the clusters closest to the image feature with respect to each one of the image features;

5 selecting an image feature successively from the image features in an ascending order of the distance;

obtaining an increase in a radius of each cluster such that said each cluster contains the
10 selected image feature; and

making the selected image feature belong to a cluster that has the smallest radius increase.

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12. The computer-readable medium as claimed in claim 9, wherein said program code for dividing the display space includes:

20 a dividing program code for dividing the display space in a direction of a selected dimension selected for a given node of the tree structure into divided spaces as many as there are nodes immediately under the given node in the tree structure; and

25 a repeating program code for causing said

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dividing program code to repeat processing thereof by
changing the selected dimension as a new node is
selected as the given node from a next node level.

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13. The computer-readable medium as claimed in
claim 12, wherein said dividing program code further
10 provides extra spaces between the divided spaces such
that the extra spaces represent gaps between the nodes.

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14. The computer-readable medium as claimed in
claim 12, wherein said dividing program code divides the
display space such that the divided spaces corresponding
to the respective nodes have sizes proportional to
20 numbers of image features belonging to the respective
nodes.

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15. The computer-readable medium as claimed in claim 12, wherein said dividing program code divides the display space such that the divided spaces corresponding to the respective nodes have sizes proportional to sizes of the sub-spaces corresponding to the respective nodes.

16. The computer-readable medium as claimed in claim 12, further comprising a program code for adjusting sizes of the divided spaces such that the sizes of the divided spaces corresponding to the respective nodes reflect numbers of image features belonging to the respective nodes and sizes of the sub-spaces corresponding to the respective nodes.

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17. A device for displaying images that resemble each other, comprising:

a memory which stores therein a program; and

a CPU which executes the program, wherein said

25 CPU executing the program performs the steps of:

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extracting image features from images;
dividing a feature space of the image features
into sub-spaces having a hierarchical structure;
generating a tree structure having the sub-
5 spaces as nodes thereof;
dividing a display space into divided spaces
reflecting the tree structure; and
assigning the images to the corresponding
divided spaces so as to display the images arranged in
10 the display space.

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15 18. A computer-readable medium having a
program embodied therein for causing a computer to
create a display screen image for displaying items that
resemble each other, said program comprising:
a program code for extracting item features
20 from items;
a program code for dividing a feature space of
the item features into sub-spaces having a hierarchical
structure;
a program code for generating a tree structure
25 having the sub-spaces as nodes thereof;

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a program code for dividing a display space
into divided spaces reflecting the tree structure; and

a program code for assigning the items to the
corresponding divided spaces so as to display the items

5 arranged in the display space.

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